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09/839,510	04/20/2001	Erik Sparrman	34645-00531USPT	2899
27045	7590	11/03/2004	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR C11 PLANO, TX 75024			VARTANIAN, HARRY	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/839,510

Applicant(s)

SPARRMAN ET AL.

Examiner

Harry Vartanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 4/20/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 26 is/are rejected.
- 7) ☒ Claim(s) 22-25, 27-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/13/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/2003, 1/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: a plurality of component numbers in fig 1, 2A, 2B, 3, 5, and 6. **PLEASE THOROUGHLY REVIEW EACH AND EVERY COMPONENT AND AMEND THE SPECIFICATION ACCORDINGLY TO DESCRIBE ITS FUNCTION.** Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Elements 212b-c, 216b-c, and 226c. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37

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CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities: in page 19, line 12 the step of moving from switch 2 to position 2 is labeled as 532 not 512.

Appropriate correction is required.

***Claim Objections***

4. Claim 7 is objected to because of the following informalities: the grammar "using only ICU" in line 2-3 sounds improper. Appropriate correction is required.

5. Claims 9-19, 22-25, 26-29, and 30-31 are objected to because of the following informalities: The acronym ICU is not defined in claims 9, 11, 12, 13, 15, 17, 19, 22-25, 26, 29, and 30.

Claims 10, 14, 16, 18, 27-28, and 31 are objected to for being dependent on an objected base claim.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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6. Claim 1-21 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. In independent claims 1, 9, and 20 the element "...selected from any of a plurality of interference cancellation demodulation schemes..." is critical or essential to the practice of the invention, but not included in the specifications is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). On the contrary, the specification only focuses on using three particular interference cancellation methods. One recommended change to the claim language would to "any of a **selected** -OR- **predetermined** plurality of interference cancellation demodulation schemes..."

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. Claims 1-2, 4-7 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Esmailzadeh et al (United States Patent# 6,760,315). Regarding Claim 1, Esmailzadeh et al interference cancellation method meets the following limitations of the claim:

configuring a receiver to demodulate using an interference cancellation demodulation scheme selected from any of a plurality of interference cancellation demodulation schemes; and **(Column 4, Lines 17-28)**

demodulating said data sequences according to said interference cancellation demodulation scheme selected, **(Fig 5 Item 6, Abstract)**

said demodulating comprising coupling said data sequences to an interference cancellation unit (ICU) at instances based upon the interference cancellation scheme selected. **(Column 4, Lines 17-28)**

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Regarding Claim 2, Esmailzadeh et al meets the following limitations of the claim:

said interference cancellation demodulation scheme comprises a successive interference cancellation demodulation scheme, a parallel interference cancellation demodulation scheme, or a hybrid interference cancellation demodulation scheme. **(Column 4, line 17-28)**

Regarding Claim 4, Esmailzadeh et al meets the following limitations of the claim:

retrieving at least one parameter enabling said receiver to function according to the interference cancellation demodulation scheme selected. **(Column 4, Lines 20-24) Note: "spreading sequences and time delays" can be considered as parameters**

Regarding Claim 5, Esmailzadeh et al meets the following limitations of the claim:

selectively storing certain demodulated data sequences used in the interference cancellation demodulation for other received data sequences. **(Column 3, lines 35-55)**

Regarding Claim 6, Esmailzadeh et al meets the following limitations of the claim:

wherein said data sequences are symbol sequences. **(Column 4, line 17-21)**

Regarding Claim 7, Esmailzadeh et al meets the following limitations of the claim:

said step of demodulating is repeated a plurality of times using only ICU within said receiver so as to further cancel interference influencing said data sequences. **(Column 6, line 42-46) says that the interference cancellation is "repeated"**

Regarding Claim 26, Esmailzadeh et al meets the following limitations of the claim:

receiving the data sequence; **abstract**

detecting an estimate of a first spreading code's symbols from said data sequence using an ICU; **(Column 5, lines 43-60)**

storing the estimate of said first spreading code's symbols in a first register associated with said first spreading code's symbols; and **(Column 6, Lines 25-41)**

subtracting a first signal associated with the estimate of said first spreading code's symbols from said data sequence to produce a modified data sequence. **(Column 2, lines 47-52); fig 2**

Moreover, regarding the last limitation of claim 26 figure 2 shows that the estimation of the spreading codes involves the summation and subtraction of codes with the other stages in the multi-stage interference cancellation unit.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Esmailzadeh et al(United States Patent# 6,760,315). Esmailzadeh et al discloses the claimed invention except for using one processing element for any of the cancellation schemes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a multi-function cancellation unit, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

9. Claims 8-9, 10, 12, 13, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esmailzadeh et al(United States Patent# 6,760,315) in view of Kim et al(United States Patent# 6,067,333). Regarding Claim 8 and 9, Esmailzadeh meets all the limitations of the claim except disclosing the use of "a control signal for selectively activating a switch disposed between said ICU and said data sequences".

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However, Kim et al's adaptive interference cancellation method discloses the use of switches to control an "interference cancellation process" by mixing both serial and parallel cancellation methods(abstract). Moreover, in Fig 6b he shows the use of a selector controller for managing the interference cancellation and in Column 9, Lines 36-45 he talks about using control signals. Therefor it would have been prima facie obvious to use a controller to switch among different cancellation schemes. A motivation to combine is that the use of a switch or a controller is a well-known component in the art used in receiver's to control multiple processes.

Regarding Claim 10, Esmailzadeh et al meets the following limitations of the claim:

wherein said demodulator is configured by at least one parameter associated with said receiver. **(Column 4, line 20-24) Note: "spreading sequences and time delays" can be considered as parameters**

Regarding Claim 12, Esmailzadeh et al meets the following limitations of the claim:

each data sequence said ICU performs said interference cancellation demodulation a plurality of times so as to further cancel interference influencing said data sequences. **(Column 6, line 42-46) says that the interference cancellation is "repeated"**

Regarding Claim 13, Esmailzadeh et al meets the following limitations of the claim:

wherein said single ICU performs said selected interference cancellation demodulation for a plurality of users. **Fig 2 shows the existence of multiple users**

Regarding Claim 16, Esmailzadeh et al meets the following limitations of the claim:

wherein said interference cancellation demodulation scheme is a successive interference cancellation demodulation scheme, a parallel interference cancellation demodulation scheme, or a hybrid interference cancellation demodulation scheme. **(Column 4, line 17-28)**

Regarding Claim 17, Esmailzadeh et al meets the following limitations of the claim:

a register, coupled between said ICU and said input, for temporarily storing said data sequences. **Fig 3 see buffers and (Column 6, Lines 25-41) for storing sequences**



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Regarding Claim 18, Esmailzadeh et al meets the following limitations of the claim:

accumulation registers for storing selected demodulated data sequences. **Fig 2**

Moreover, a summer is a type of accumulator that temporarily stores data as it subtracts and adds as shown in figure 2.

10. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Esmailzadeh et al(United States Patent# 6,760,315) in view of Kim et al(United States Patent# 6,067,333). Esmailzadeh et al and Kim et al disclose the claimed invention except for using one processing element for any of the cancellation schemes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a multi-function cancellation unit, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. Howard v. Detroit Stove Works, 150 U.S. 164 (1893).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 571.272.3048. The examiner can normally be reached on 10:00-6:30 Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571.272.3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry Vartanian  
Examiner  
Art Unit 2634

HV



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